

The spindle A being still as in the last adjustment, truly vertical, put on the colatitude bracket D, and move the R.A. and declination motions till the circular level is true, then the R.A. circle should read  $0^h$ ; if not, adjust the level by the screws  $a$  and  $b$  until it does.

(5) To adjust the level to the angle of colatitude of the place of observation:—

The spindle as before being vertical, the R.A. vernier at  $0^h$ , and the declination vernier set to the colatitude, adjust the level true by the screw  $c$ .

(6) To set the spindle parallel to the optical axis of the telescope:—

Set up a scale of equal parts vertically at a distance of 200 yards or so from the telescope, and having placed a spirit level on the surface of the declination circle, parallel to the direction of the spindle (as in the 1st adjustment), move the telescope till it shows level; read scale through telescope; now reverse the telescope, level again as before, note reading of scale again; the midway point between these two readings is the level point; to which having set the telescope, adjust the spindle level by the screws that hold it; now support the telescope on temporary supports the same height as its stand, with the line joining its trunnions vertical, and having directed it to the level point on the distant scale, adjust the spindle level in this direction also.

*Note upon the Star Bradley 2935.* By Prof. T. H. Safford.

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The star in question, the *preceding* of a double found in Struve's Dorpat Catalogue, has usually been identified with the *following* component; and this because its proper motion for 100 years is approximately equal to the distance between the two stars.

How the case stands can be readily seen by reducing the extant positions of the preceding star to 1855.0. With the approximate position for that date,

$$\begin{array}{rcccl} & h & m & s & & & ^\circ & ' & '' \\ 22 & 3 & 11.2 & \text{and} & +82 & 10 & 13, \end{array}$$

we obtain the following formulæ for reduction (by precession only) from 1855 to  $1855+t$ :—

$$\text{In R.A.} \quad \overset{s}{-1.67298} t - \overset{s}{0.3972} \frac{t^2}{200} - \overset{s}{2.017} \left( \frac{t}{100} \right)^3,$$

$$\text{In Decl.} \quad \overset{' }{+17.5053} t - \overset{'' }{0.1274} \frac{t^2}{200} - \overset{'' }{0.511} \left( \frac{t}{100} \right)^3,$$

and thus the following positions for the equinox of 1855.0:—

Authority.	1755	R.A.			Decl.		C—O		No. Obs.
		<sup>h</sup>	<sup>m</sup>	<sup>s</sup>	<sup>°</sup>	<sup>'</sup>	<sup>s</sup>	<sup>"</sup>	
Bradley	1755	22	3	17.72	82	10	17.0	+0.06 +1.1	2.3
Groombridge	1807.8			13.96			14.7	+0.44 +0.8	
Struve	1815.2			13.79				+0.14	1
Struve	1823			13.52			14.6	−0.09 +0.1	6
Schwerd	1828			13.2			15.9	−0.09 −1.4	5
Radcliffe	1844.0						13.0	+0.6	6
Armagh	1844.8						16.1	−2.5	1
Radcliffe	1847.8			12.06				−0.22	3
Armagh	1853.9			9.9				+1.55	1
Carrington	1856.6			11.5			14.1	−0.23 −1.1	3
Yarnall	1866.4			10.58			11.3	+0.07 +1.2	4.2
Airy	1867.7			10.69			13.8	−0.12 −1.3	2
Main	1872.8			10.18			11.1	+0.06 +1.1	4.3

The formula for position and proper motion with which comparison is made is

R.A. = 22<sup>h</sup> 3<sup>m</sup> 11.38<sup>s</sup> − 0.064 (t − 1855),

Decl. = 82° 10' 13.1" − 0.05 (t − 1855).

The systematic corrections, uncertain in this region, have been applied only for Struve 1815, where the observations are arranged purposely for them; it is at once plain that the following star, which is in about 6<sup>s</sup>.6 greater right ascension and 3<sup>''</sup>.3 greater declination, cannot be identical with the one observed by Bradley.

In consequence of the error in identification the proper motion is given

By the B.A.C.	<sup>s</sup> +0.017	<sup>"</sup> −0.03.
By Mädler	−0.0101	−0.002.

The latter authority rejects Struve's place of 1823—which I give as used in his discussion, not having the *Positiones Medice*—as it does not harmonise with his wrong authorities of later date. The true star is Groombridge 3707, the false one 3709. Slight changes will be necessary in the nomenclature and positions of the Seven-year Catalogue of 1864. The star's proper motion in arc is about 0<sup>''</sup>.14, in a direction not very far from diametrically opposite to that which the solar motion would give it.

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